

Circumscription of *Chamelaucium* (Myrtaceae: Chamelaucieae), with validation of six species names and two new combinations

Neville G. Marchant

Western Australian Herbarium, Biodiversity and Conservation Science,
Department of Biodiversity, Conservation and Attractions
Locked Bag 104, Bentley Delivery Centre, Western Australia 6983

Abstract

Marchant, N.G. Circumscription of *Chamelaucium* (Myrtaceae: Chamelaucieae), with validation of six species names and two new combinations. *Nuytsia* 30: 317–334 (2019). An updated description of the genus *Chamelaucium* Desf. compiled from all currently recognised formal and informal taxa is presented to establish the status of *Chamelaucium* at generic level within the Myrtaceae, tribe Chamelaucieae. Descriptions are provided for *C. erythrochlorum* N.G.Marchant, *C. floriferum* N.G.Marchant, and its two subspecies, *C. lullfitzii* N.G.Marchant, *C. orarium* N.G.Marchant, *C. roycei* N.G.Marchant, and *C. xanthocladum* N.G.Marchant. New combinations are made and descriptions provided for *C. forrestii* (F.Muell.) N.G.Marchant, and *C. repens* (A.S.George) N.G.Marchant. Precise localities for all taxa have been withheld for conservation reasons.

Introduction

Chamelaucium Desf. is one of a group of 37 currently recognised genera placed in the Myrtaceae tribe Chamelaucieae DC. (Rye *et al.* in press). Phylogenetic and taxonomic studies on member genera are ongoing by various authors, especially in *Actinodium* Schauer, *Chamelaucium*, *Darwinia* Rudge, and *Verticordia* DC. Current phylogenetic studies by others recognise that of these four genera only *Chamelaucium* is best treated as a discrete genus as currently circumscribed (B.L. Rye, pers. com. 5 March 2019). The present paper provides a generic description of this genus recognising it as a distinct entity in the tribe Chamelaucieae, endemic to south-western Australia, and currently comprised of around 40 described and undescribed species. Six species are formally validated here and two new combinations are made. All taxa have conservation priority, including two being currently assigned ‘vulnerable’ status.

Methods

Descriptions of new taxa have been developed from PERTH herbarium specimens, and from field observations. Measurements were made using rehydrated flowers and leaves. Relevant type material has been studied at CGE, K, MEL and PERTH, and other specimens have been viewed on *Global Plants* (<https://plants.jstor.org/>).

Circumscription of *Chamelaucium* Desf.

Taxonomic history

The generic name *Chamelaucium* dates from the publication of two species by Desfontaines (1819a). Sprengel (1825) adopted the variant spelling *Chamaelaucium* which was taken up by Candolle (1827, 1828) and used in later literature, even after the original spelling had been pointed out by Bibby (1944).

Desfontaines (1819a) based the genus on *C. ciliatum* Desf. and *C. plumosum* Desf.; subsequently, in the same volume, he added *C. brownii* Desf. (Desfontaines 1819b). The latter two species were later transferred to *Verticordia*. *Chamelaucium sensu* Desfontaines was characterised by membranous, caducous bracteoles, and either prominently ciliate calyx lobes (in *C. ciliatum*) or by each calyx lobe being deeply divided into ciliate segments (*C. brownii* and *C. plumosum*).

In 1828 A.P. de Candolle described *Verticordia* in which he placed *C. plumosum* (as *V. fontanesii* DC.) and *C. brownii*. He retained *C. ciliatum* in *Chamelaucium* which he distinguished from *Verticordia* by the lower degree of division of the calyx lobes, the included style, the form of the stigma, and absence of substigmatic hairs. *Chamelaucium ciliatum* Desf. can thus be regarded as the type species of *Chamelaucium*. This species is extremely morphologically variable and unlike almost all other members of the genus it has prominently ciliate calyx lobes and a glabrous style, both characters resembling those of some species of *Verticordia*.

Endlicher (1838) and Schauer (1844) each added another species of *Chamelaucium* (*C. virgatum* Endl. and *C. uncinatum* Schauer), both characterised by large flowers with entire, short, broad calyx lobes and entire petals.

Turczaninov, working on collections of James Drummond, described the genus *Decalophium* Turcz. (Turczaninov 1847), listing one species, *D. pauciflorum* Turcz. In 1852, he published a detailed description of this species as well as another five species of *Decalophium* (Turczaninov 1852). Bentham (1867) transferred *D. pauciflorum* to *Chamelaucium*, and added four more species to those already published; he was, however, unaware of Turczaninov's 1852 paper, and it was not until Domin (1923) that the names contained in that paper were brought to the attention of botanists with the publication of several new combinations, including *C. micranthum* (Turcz.) Domin, based on *Decalophium micranthum* Turcz.

Taxonomic confusion between the genera *Chamelaucium* and *Darwinia* partly dates from Turczaninov's description of *Genetyllis pauciflora* Turcz. (Turczaninov 1849). Turczaninov later transferred this species to his *Decalophium* (Turczaninov 1852); however, because he had already used the same epithet under that genus name in 1847, he provided the new name *Decalophium rugulosum* Turcz. *Genetyllis* had been established by Candolle in 1828, and was later regarded by Bentham (1865, 1867) as a section of *Darwinia* Rudge, referring only to south-western Australian species.

Further nomenclatural confusion resulted from the publication of the *Systematic Census of Australian Plants* (Mueller 1882), in which Mueller transferred ten species of *Chamelaucium* to *Darwinia*, and because the same epithets had been used for different taxa in the two genera, new species names were created. Although Mueller's inclusion of *Chamelaucium* in *Darwinia* was not recognised by Gardner (1931), nor subsequently by Blackall (1954) or Blackall and Grieve (1980), the difference between the two genera was not clear. This is exemplified by the number of misidentifications on herbarium

specimens, and the publication of two species of *Chamelaucium* as *Darwinia*, most likely on the basis of their exserted styles; the recombinations are made below.

Generic description

Chamelaucium Desf., *Mém. Mus. Hist. Nat.* 5: 34–44 (1819); A.P. de Candolle, *Prodr.* 3: 209 (1828).
Type species: C. ciliatum Desf.

Decalophium Turcz., *Bull. Soc. Imp. Naturalistes Moscou* 20: 153 (1847). *Type species: D. pauciflorum* Turcz.

Shrubs up to 4 m high, widely spreading, much branched or often slender with a single lower stem, sometimes prostrate or nearly so. *Leaves* 2–30 mm long, opposite decussate, or alternate, sometimes aggregated at ends of branchlets, often borne in fascicles on short lateral shoots; linear-triangular, narrowly obovate to lanceolate, or ovate to elliptic, adaxial surface frequently grooved, abaxial surface flat or ± convex; margins entire or serrulate, or densely ciliate with simple or plumose hairs, rarely hyaline; apex truncate, acuminate or mucronate, sometimes minutely bifid; leaf scars persistent, usually very prominent; floral leaves undifferentiated, or shorter and broader, sometimes with a hyaline margin, or rarely ciliate with simple or plumose hairs. *Flowers* solitary or in lax or dense axillary or terminal racemes, or dichasia¹. *Bracteoles* 0.5–7 mm long, brown or reddish, caducous or persistent, rarely connate at the base and retained to fruiting, cucullate or deeply concave and spatulate, usually umbonate on the outside at the highest part, the umbo of the inner bracteole often less prominent; umbo (when present) very prominent and curved, horn-like or barely developed. *Floral tube* 2–8 mm long, turbinate, campanulate or obconic to cylindrical; lower part adnate to ovary, 1.5–5 mm long, 5 to 10-ribbed, rugose, or smooth, frequently 10-foveolate, upper part free from ovary, 0.5–4 mm long, smooth or with 10 or more ribs, or rugose, glands less prominent. *Calyx lobes* 5, 0.5–3.5 mm long, usually under 2 mm long, green, white, or reddish, semicircular, oblong, ovate, spatulate or triangular, entire, ciliate, ciliolate, crenate or irregularly dentate; sinuses narrow to wide, rarely absent. *Petals* 5, 2–7 mm long, white, often aging red, pink, purple or yellow-green, mostly obovate, ovate, or orbicular, concave, entire, ciliolate or irregularly dentate. *Stamens* 10, rarely up to 13, anthers opening by longitudinal slits; staminodes 10, rarely 12, less than 0.5 or up to 3 mm long, linear or spatulate, often divided at the tip into two uneven segments. *Style* 2–24 mm long, included, shortly exserted, or long exserted, usually dilated in lower part, most species with substigmatic hairs, which are most commonly in a band subtending the stigma. *Ovules* 4–10. *Fruit* a one-seeded nut, encased by the dried, lower part of the floral tube.

¹Briggs and Johnson (1979) regard the inflorescence of *Chamelaucium* as either a monad, or corymbiform, racemiform or a spiciform conflorescence, or a superconflorescence.

Diagnostic features. Bracteoles cucullate and deeply concave and spatulate, not keeled, almost always with an umbo arising from the highest part of the outer bracteole. Flowers are never subtended by an involucre. The 5 calyx lobes and 5 petals are never deeply divided. The 10 anthers dehisce by two longitudinal slits, and often have a large connective. There are 10 staminodia. The stigma is usually subtended by a narrow band of hairs, and the ovule numbers range from 4 to 10.

Size and distribution. The genus comprises around 40 formally described and undescribed species, and is confined to the south-west of Western Australia where it occurs in various coastal and inland habitats from the lower Murchison to east of Esperance, with a few species associated with granitic monadnocks in the south-western forests. A number of species commonly occur in sandy and rocky soils in kwongan vegetation.

Etymology. Desfontaines (1819a) coined the generic name from the strong resemblance of the bracteoles, especially the outer bracteole, to a cape or hood. A late antique Greek word for a type of cap worn by court officials, or the hood of a monastic habit, is a καμελαύκιον, i.e. *kamelaukion* (Sophocles *et al.* 1900). In the type species *C. ciliatum* Desf., the bracteoles are brown and closely resemble the hood or cape of a medieval monk. An additional monastic hood-like character is the erect or curved, cone-shaped nipple, referred to here as an ‘umbo’, borne on the highest part of the bracteoles of *C. ciliatum* Desf., and most other species of the genus.

New taxa and new combinations

Chamelaucium erythrochlorum N.G.Marchant, *sp. nov.*

Type: Yoongarillup [precise locality withheld for conservation reasons], Western Australia, 19 November 1980, G.J. Keighery 3635 (*holo:* PERTH 04997158!; *iso:* PERTH 01257560!).

Chamelaucium sp. Yoongarillup (G.J. Keighery 3635), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed 6 June 2019].

Chamelaucium erythrochlorum N.G.Marchant & Keighery ms; G. Paczkowska & A.R. Chapman, *West. Austral. Fl.: Descr. Cat.* 355 (2000); Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed 6 June 2019].

Shrub, erect, 0.5–1.5 m high, rarely more. *Leaves* opposite decussate, linear, 15–23 mm long, 0.7–0.8 mm wide, 0.8–1 mm deep; adaxial surface deeply grooved; margins entire, rarely serrulate; apex acuminate-mucronate; petioles 0.3–1 mm long, appressed to stem; decurreneces prominent, 1.5–3 mm long. *Flowers* solitary in leaf axils forming open racemes of 1–15 flowers on young branches, 3.5–5 mm diam.; disc 2.5–4 mm diam.; pedicels 1.5–5.5 mm long, glandular, with two tiny auricles at the top, representing decurreneces of the bracteoles. *Bracteoles* 2–2.5 mm long; umbo prominent, slender, erect to incurved to almost horizontal, to 1.5 mm long. *Floral tube* green, obconic-turbinate 5.5–8 mm long; lower part of floral tube 2.5–4 mm long, strongly 10-ribbed, rugose, glandular, foveolae not obvious; upper tube 3–4 mm long, sometimes clearly 10-ribbed, frequently ribs indistinct. *Calyx lobes* red-pink, triangular-ovate to oblong with a triangular-rounded apex, 1.5–2.5 mm long; margins ciliate to shallowly lacerate; sinuses narrow. *Petals* bright red, erect, obovate-broadly obovate, concave, ± hooded, with a narrowed base adnate to the staminal tube, 4.5–6.5 mm long; margins ciliate to shallowly lacerate. *Stamens* in a tube 0.2–1 mm long, the sepaline stamens set slightly lower than the petaline; filaments narrowly oblong, slightly broader at the base, 0.5–1 mm long; anthers 0.5–0.6 mm diam., connective darker, red-brown, swollen; staminodes narrowly oblong, sometimes slightly wider towards the base, 0.8–1.8 mm long, adaxial surface frequently slightly concave so that the expanded apex is shortly hooded; apex shortly lobed, one lobe frequently longer (to 0.3 mm) and darker coloured. *Style* well exerted, 16–24 mm long; stigma barely broader than the upper part of the style, convex, 1 mm diam., subtended by a band of hairs; substigmatic hairs filiform, 0.5–0.6 mm long. *Ovules* 6–10.

Diagnostic features. Tall spindly shrub with a single stem at the base. The floral tube is bright green and the corolla red and the style is well exerted.

Selected specimens examined. WESTERNAUSTRALIA: [localities withheld for conservation reasons] 7 Jan. 1997, N. Casson & B. Evans SC137.9 (PERTH); 13 Dec. 2001, R.J. Cranfield 17674 (PERTH); 12 Nov. 1957, H.E. Dawson s.n. (PERTH); 26 Nov. 1975, A.S. George 14219 (PERTH); 6 Feb. 2002,

J. Liddelow s.n. (PERTH); 20 Dec. 1978, *N.G. Marchant s.n.* (PERTH); 7 Feb. 1989, *G. S. McCutcheon* 1994 (PERTH); 10 Dec. 1985, *S. Patrick* 219 (PERTH); 28 Dec. 1976, *B.L. Rye* 76040 (PERTH); 21 Jan. 1993, *G. Wardell-Johnson* 3177 (PERTH).

Phenology. Flowers from November to February.

Distribution and habitat. Restricted to remnant localities on the foothills and more widespread in the Whicher Range scarp and nearby jarrah forest and jarrah marri woodlands. Grows on lateritic soil, pale sandy clay, or loam soils.

Conservation status. Currently listed as Priority Four under Conservation Codes for Western Australian Flora. Listed (Smith & Jones 2018) under the name *C. sp.* Yoongarillup (G.J. Keighery 3635).

Etymology. From Greek words *erythros* for red, and *chloros* for green, referring to the bright red corolla and bright green floral tube.

Chamelaucium floriferum N.G. Marchant, *sp. nov.*

Type: Walpole Nornalup National Park [precise locality withheld for conservation reasons], Western Australia, 10 November 1976, *N.G. Marchant s.n.* (*holo:* PERTH 06763324).

Chamelaucium floriferum N.G. Marchant & Keighery ms; G. Paczkowska & A.R. Chapman, *West. Austral. Fl.: Descr. Cat.* 355 (2000); Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed 6 June 2019].

Shrub, erect, 0.6–3 m high. *Leaves* distinctly opposite decussate, vertically oriented or spreading, linear, ± triquetrous, 7–20 mm long, 0.5–0.9 mm wide, 0.6–1 mm deep; adaxial surface usually deeply grooved; apex usually acute, sometimes finely bifid, rarely obtuse; petioles 0.4–1 mm long, usually appressed to stems; decurrences usually paler coloured than stems, 0.6–6(–12) mm long. *Flowers* solitary in upper axils forming racemes of 2–12(–16) flowers, 5.5–8 mm diam. at maturity; disc 2–2.4 mm diam.; pedicels 2–10 mm long, erect or spreading. *Bracteoles* 2–3.3 mm long, rarely longer; umbo usually prominent, incurved, narrowly to broadly conic, and laterally compressed, 0.5–0.9(–1.6) mm long, or only 0.1–0.3 mm long, or obscure. *Floral tube* narrowly campanulate to broadly campanulate, glandular, shallowly 10-ribbed or ribbing sometimes obscure, shallowly rugose, shallowly pitted or ± smooth, 2.5–4.5 mm long; lower part of tube 1.3–3.4 mm long, with or without 10 shallow foveolae on the upper part; upper part of tube 0.8–1.4 mm long. *Calyx lobes* broadly triangular-deltate to shallowly triangular, 0.5–0.8 mm long; margins usually entire, sometimes irregularly serrulate-serrate near the apex; sinuses wide. *Petals* white, pink, or reddish ± erect-spreading; concave, broadly obovate-orbicular, 2.6–3.5(–4.5) mm long; margins entire or finely uneven to shallowly crenate, sometimes with a few scattered serrations. *Stamens* in a tube 0.2–0.8 mm long, with filaments and staminodes borne at the same level; filaments usually narrowly triangular-triangular, or sometimes widening at the base and linear above, 0.5–1.5 mm long; anthers 0.4–0.5 mm diam.; connectives swollen; staminodes narrowly triangular or linear, sometimes slightly dilated in the subapical region, 0.5–1 mm long; apex acute, reddish. *Styles* shortly exerted, usually thickened at the base, 2.5–3.5(–4.5) mm long; stigma dilated, hemispherical-subglobose, 0.3–0.4 mm diam. and subtended by a band of hairs, but sometimes globose and papillose; substigmatic hairs (when present) reflexed, filiform, 0.3–0.4 mm long. *Ovules* 7–9.

Etymology. The name is derived from Latin *flos*, a flower, and *ferre*, bear, an adjectival form implying many flowers.

Notes. Two subspecies are recognised.

Key to subspecies

1. Compact shrub; leaves vertically oriented, light green, rigid; pedicels 2–7.5 mm long, as short as flower, or slightly longer than the flower **C. floriferum** subsp. **floriferum**
- 1: Diffuse-branched shrub; leaves mostly horizontally oriented, dark green, flaccid; pedicels 6–10 mm long, longer than the flower..... **C. floriferum** subsp. **diffusum**

Chamelaucium floriferum subsp. **floriferum**

Shrub to 0.2 m high, with a distinctly trullate outline. *Leaves* vertically oriented, 7–15 mm long, rigid, light green. *Flowers* crowded in upper axils, as long as subtending leaves, slightly shorter or sometimes exceeding leaves; pedicels 2–7.5 mm long, as short as flower or slightly longer. *Petals* white, pink or reddish.

Diagnostic features. Floriferous pine-like shrub with rigid, vertically oriented, light green leaves. Pedicels as short as the flower or slightly longer. Flowers white, pink or reddish, crowded in upper axils.

Selected specimens examined. WESTERNAUSTRALIA: [localities withheld for conservation reasons] 18 Dec. 1990, *A.R. Annels* 1513 (PERTH); 6 Oct. 2007, *M. Crowhurst* 173 (PERTH); 26 Nov. 1997, *E.D. Middleton* 103 (PERTH); 9 Oct. 2005, *E.D. Middleton* 739 (PERTH); 7 Dec. 1986 *A.S. Weston* 15258 (PERTH); 22 Sep. 1992, *J.R. Wheeler* 3253 (PERTH).

Phenology. Flowers between September and December.

Distribution and habitat. Found in near-coastal areas from just west of Point Nuyts to Mt Hopkins, in open coastal heath, and thickets, on sandy or loam soils between granitic outcrops or on sandy soil over limestone above granitic country rock.

Conservation status. Recently up-graded from Priority Three to Priority Two under Conservation Codes for Western Australian Flora. Listed under the erroneous informal name *C. sp.* Walpole (P.G. Wilson 6318); see note under *C. floriferum* subsp. *diffusum* below [accessed 24 June 2019].

Notes. This subspecies is widely cultivated and is known as ‘Walpole Wax’. Artificial hybrids have been created with *C. uncinatum*. It is restricted to a few hundred metres from the coast and may be subjected to salt spray. It retains its form and rigid leaf characters in cultivation. Some specimens from the eastern part of the range, a short distance inland near Mt Hopkins, resemble *C. floriferum* subsp. *diffusum*.

Chamelaucium floriferum subsp. **diffusum** N.G.Marchant, *subsp. nov.*

Type: Walpole Nornalup National Park [precise locality withheld for conservation reasons], Western Australia, 12 November 1976, *N. Marchant* 76/125 (*holo:* PERTH 06796443).

Chamelaucium sp. Nornalup (N.G. Marchant 76/125), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed 6 June 2019].

Chamelaucium sp. Walpole (P.G. Wilson 6318), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed 6 June 2019]. This specimen is not the typical subspecies. It is *C. floriferum* subsp. *diffusum*; see Notes below.

Chamelaucium floriferum subsp. *diffusum* N.G. Marchant & Keighery ms; G. Paczkowska & A.R. Chapman, *West. Austral. Fl.: Descr. Cat.* 355 (2000); Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed 6 June 2019].

Shrub to 3 m high, with diffuse branching. *Leaves* usually at right angles to stem, 15–20 mm long, flaccid, dark green, widely spaced. *Flowers* in open racemes; pedicels up to 10 mm long, longer than flowers. *Petals* white or pale pink. (Figure 1)

Diagnostic features. A many-flowered, open diffuse-branched shrub, not pine tree-like or trullate in outline. Leaves usually at right angles to stem and generally distantly spaced. Pedicels longer than flowers, up to 10 mm long.

Selected specimens examined. WESTERNAUSTRALIA: [localities withheld for conservation reasons] 25 Nov. 1985, *A.R. Annels* 1870 (PERTH); 7 Jan. 2003, *J.A. Cochrane* 4530 (PERTH); 23 Oct. 2007, *M. Crowhurst* 136 (PERTH); 7 Nov. 2007, *M. Crowhurst* 180 (PERTH); 28 Nov. 2000, *G. Freebury* 35 (PERTH); 7 Aug. 1980, *N.G. Marchant* 80/65 (PERTH).

Phenology. Peak flowering is between August and December; some populations may flower between January and May.

Distribution and habitat. Sandy loam apron soils of granitic rocks, away from the coast. Populations are scattered and associated with granitic monadnocks from Kent River near Denmark, westwards to south east of Northcliffe.

Conservation status. Currently listed as Priority Two under Conservation Codes for Western Australian Flora (Smith & Jones 2018), under the name *Chamelaucium* sp. Nornalup (N.G. Marchant 76/125), [accessed 24 June 2019].

Etymology. The subspecies name refers to the diffuse branching habit.

Notes. The specimen used to represent the temporary name *C. sp.* Walpole (P.G. Wilson 6318) is *C. floriferum* subsp. *diffusum*. It was collected at the type locality for this subspecies, an inland locality, and not the near-coastal habitat of the typical subspecies.

Chamelaucium forrestii (F. Muell.) N.G. Marchant, *comb. nov.*

Darwinia forrestii F. Muell., *Fragm.* 11: 9 (1878). *Type:* In rupibus graniticis ad summitatem montis Burrobnup prope flumen Gordon's River [Western Australia], December 1877, *F. Mueller s.n.* (*lecto* here designated: MEL 2290893!; *isolecto:* CGE!, GH 00068981!, MEL 726509!, MEL 726510!, MEL 2290894!, PERTH 06796427!).

Chamelaucium sp. Mt Frankland (A.S. George 11117), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed 6 June 2019].

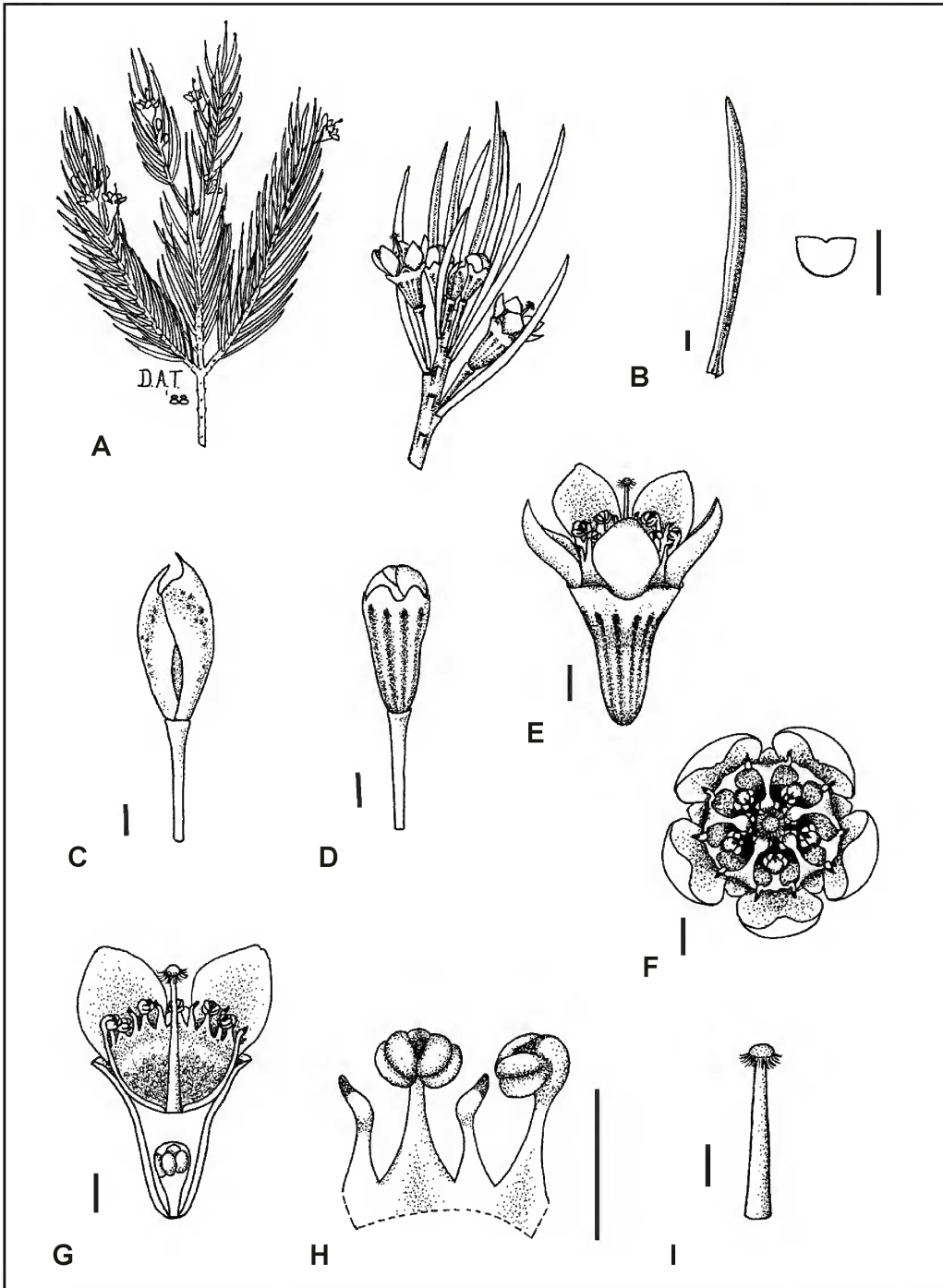


Figure 1. *Chamelaucium floriferum* subsp. *diffusum*. A – flowering leafy shoot and close-up; B – leaf, side view and cross section; C – flower bud surrounded by overlapping bracteoles, each with an umbo; D – flower bud, bracteoles removed; E – flower at anthesis; F – flower from above; G – flower in longitudinal section; H – staminiodia and stamens with front and side view of anthers; I – style showing band of substigmatic hairs. Scale bars = 1 mm. Drawn by Donna Terrington from *N.G. Marchant* 80/65 (PERTH 01170864).

Chamelaucium forrestii (F.Muell.) N.G.Marchant & Keighery ms; G. Paczkowska & A.R. Chapman, *West. Austral. Fl.: Descr. Cat.* 355 (2000); Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed 6 June 2019].

Shrub, erect, up to 2 m high, sometimes broadly spreading up to 2 m across. *Leaves* opposite decussate, erect, dark green, linear, 10–24 mm long, 1–1.5 mm diam., somewhat fleshy; adaxial surface deeply grooved; margins entire; apex truncate with two, minute, lateral mucrones; petioles to 1 mm long, appressed to stem; decurrences pale coloured, prominent. *Flowers* solitary in upper leaf axils, forming open racemes of 1–15 flowers on young branches, 3–4 mm diam.; disc 2.5–3 mm diam.; pedicels 3–6 mm long, deflexed so that flowers are well clear of the erect leaves. *Bracteoles* 4–5 mm long, 3 mm across, deeply cucullate; umbo acuminate 0.8–1 mm long. *Floral tube* narrowly obconic, 3.5–5 mm long; lower part of floral tube 2.5–3.5 mm long, ribbed, rugose, foveolae 10; upper part of floral tube 1–1.5 mm long, ribs not prominent, intervening surfaces finely pitted. *Calyx lobes* broadly triangular, 1–1.5 mm long, 1.5–1.7 mm across; margins minutely serrate, apex angular. *Petals* cream coloured, tinged green, erect, obovate-broadly obovate, deeply concave, 2.5–3.5 mm long; margins entire. *Stamens* in a tube 0.5 mm long, filaments narrowly triangular, 0.5–0.6 mm long; anthers 0.3–0.5 mm diam., connective thickened; staminodes narrowly oblong, slightly broader in upper part, 0.3–0.5 mm long, longer than the stamens; apex obtuse. *Style* exerted, sometimes well exerted, 4–6.5 mm long; stigma convex, 0.4–0.6 mm across, subtended by a band of somewhat reflexed, straight hairs, 0.3–0.4 mm long. *Ovules* 4–6.

Diagnostic features. Leaves dark green. Style excluded. Flowers on deflexed pedicels clear of the erect leaves. Floral tube foveolate.

Distribution and habitat. The species grows on granitic monadnocks in high rainfall jarrah and karri forest.

Etymology. The epithet commemorates John Forrest, who as an explorer collected specimens for von Mueller.

Notes. The type locality, Burrobnup, is an early name for Granite Peak.

Selected specimens examined. WESTERNAUSTRALIA: [localities withheld for conservation reasons] 3 Oct. 1971, *A.S. George* 11117 (PERTH); 21 July 2009, *J. Liddelow* 81 (PERTH); 17 June 2010, *J. Liddelow* 132 (PERTH); 3 Oct. 1971, *N.G. Marchant* 76/114 (PERTH); 9 Nov. 1976, *N.G. Marchant* 76/114 (PERTH); 15 June 1997, *E.D. Middleton* 34 (PERTH); 30 Sep. 1997, *E.D. Middleton* 52 (PERTH); 7 Nov. 1998, *E.D. Middleton* 186 (PERTH); 13 Oct. 1976, *B.L. Rye* 76009 (PERTH); 10 Nov. 1990, *I.B. Wheeler* 43 (PERTH).

Phenology. Peak flowering is between July and November, also recorded as early as May and as late as January.

Distribution and habitat. Associated with granitic monadnocks in humic sandy and loamy soils in high rainfall jarrah and karri forests in the Mount Frankland district.

Conservation status. Recently up-graded from Priority Three to Priority Two under Conservation Codes for Western Australian Flora. Listed under *Chamelaucium* sp. Mt Frankland (*A.S. George* 11117), [accessed 24 June 2019].

Chamelaucium lullfitzii N.G. Marchant, *sp. nov.*

Type: between Muchea and Gingin [precise locality withheld for conservation reasons], Western Australia, 16 September 1987, *N.G. Marchant 6* (*holo:* PERTH 07576196; *iso:* CANB, K, MEL, NSW).

Chamelaucium sp. Gingin (N.G. Marchant 6), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed 6 June 2019].

Chamelaucium lullfitzii N.G. Marchant & Keighery ms; G. Paczkowska & A.R. Chapman, *West. Austral. Fl.: Descr. Cat.* 356 (2000); Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed 6 June 2019].

Shrub 100 to 200 cm high, with many erect branches bearing numerous, short axillary shoots 5–20(–30) mm long. *Leaves* semi-spreading to spreading, mostly crowded on the numerous short axillary shoots, narrowly obovate-very narrowly obovate or linear-narrowly elliptic, or sometimes very narrowly elliptic, 5.5–11.5 mm long, 1.2–1.4 mm wide, 0.6–0.8 mm deep; adaxial surface flat; abaxial surface convex, rounded or angular, plano-convex to triquetrous; margins entire; apex mucronate; petiole 0.5–1.5 mm long, appressed; decurrenences prominent; floral leaves flattened, ovate-triangular-oblong, 1.3–2.2 mm long, 0.9–1.3 mm wide; adaxial surface concave; margins rarely ciliate on the upper half; apex mucronate; decurrenences strongly and abruptly raised but short, 0.2–0.6 mm long. *Flowers* 2–9 in small heads on axillary shoots and up to 20 in the clusters at the end of main branches, 6.5–9 mm diam.; disc 3–4.2 mm diam.; pedicels 0.8–2 mm long. *Bracteoles* 3.5–4.5 mm long; umbo incurved, narrowly conic-acicular, 0.3–1 mm long. *Floral tube* broadly or very broadly obconic to broadly or very broadly turbinate, 4.4–5.4 mm long; lower part of floral tube 2.8–3.4 mm long, not foveolate, shallowly 10-ribbed; upper part of tube 1.5–2.2 mm long, obscurely ribbed or smooth. *Calyx lobes* ± erect, ovate, glandular, 2–2.8 mm long; margins irregularly denticulate and ciliate, cilia 0.5–2 mm long; sinuses wide. *Petals* white, ± erect, broadly elliptic-broadly obovate, concave, 4.6–6 mm long; margins irregularly denticulate or very sparsely and finely ciliate. *Stamens* in a tube 0.6–1 mm long, erect or arching inwards; sepaline and petaline stamens similar; filaments narrowly triangular, 0.7–1.1 mm long; anthers 0.4 mm long, connective not prominent; staminodes oblong-narrowly ovate, 0.9–1.3 mm long; apex obtuse or acute. *Styles* narrowly conic, 6.2–7.1 mm long, reaching to the top of petals; stigma strongly dilated resembling a swollen disc, finely papillate, 0.5–0.6 mm diam.; subtended by hairs from the base of the disc and directed downwards, hairs 0.4–1 mm long. *Ovules* 5–8.

Diagnostic features. Spindly erect, few-branched shrub with terminal leafy inflorescences of broad, white-petaled flowers when mature. Flowers on very short pedicels; floral tube broad; petals up to 6 mm long.

Selected specimens examined. WESTERNAUSTRALIA: [localities withheld for conservation reasons] 22 Nov. 1995, *J.A. Cochrane* 1703 (PERTH); 9 Dec. 1995, *J.A. Cochrane* 1813 (PERTH); 21 Nov. 2008, *B. Fellows* 7 (PERTH); 20 Oct. 2010, *F. & J. Hort* 3700 (PERTH); 19 Oct. 2009, *M. Hoskins* 25 & *F. Felton* (PERTH); 22 Sep. 1992, *S. Patrick* 1246 (PERTH).

Phenology. Flowers from September to December.

Distribution and habitat. Restricted to a very small area associated with the Gingin scarp, south of Gingin. Plants grow on white, grey, or yellow sands in low open banksia woodland.

Conservation status. Listed as Vulnerable in Western Australia (Smith & Jones 2018), under the name *Chamelaucium* sp. Gingin (N.G. Marchant 6) [accessed 24 June 2019].

Etymology. Named after George Lullfitz, native plant enthusiast who pioneered the widespread use of Western Australia native plants in landscaping and who first recognised this taxon as an undescribed species.

Chamelaucium orarium N.G. Marchant, *sp. nov.*

Type: Cape Vancouver [precise locality withheld for conservation reasons], Western Australia, 18 September 1978, *I. Abbott s.n.* (*holo:* PERTH 01259679!; *iso:* CANB!, K!, MEL!, NSW!).

Chamelaucium sp. Cape Vancouver (B. Swainson & D. Davidson s.n. PERTH 1259660), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed 6 June 2019].

Chamelaucium forrestii subsp. *orarium* N.G. Marchant & Keighery ms; G. Paczkowska & A.R. Chapman, *West. Austral. Fl.: Descr. Cat.* 355 (2000); Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed 6 June 2019].

Shrub, erect, 0.8–1.5 m high. *Leaves* opposite decussate, erect, linear, 10–27 mm long, mostly aggregated at ends of branches; adaxial surface grooved; margins entire; apex truncate with two, minute, lateral mucrones; petioles 1.5–2.5 mm long, appressed to stem; decurrences prominent, tinged yellow. *Flowers* solitary in upper leaf axils, erect, barely exceeding leaves, forming open racemes of 1–12 flowers on young branches, 3.5–5 mm diam.; disc 2.5–4 mm diam.; pedicels 1.5–4 mm long, erect. *Bracteoles* 5 mm long, 3 mm across; umbo prominent, acuminate, up to 2.2 mm long, incurved. *Floral tube* narrowly campanulate, 5–7 mm long; lower part of floral tube 3–4 mm long, 10-ribbed, ribs widely spaced, intervening surface distinctly rugose, foveoli absent; upper part of floral tube 1.5–2 mm long, ribs divided into three branches, intervening surfaces finely pitted. *Calyx lobes* triangular, 0.5–1 mm long and across; margins minutely serrate, apex rounded. *Petals* cream coloured, spreading at maturity, obovate-broadly obovate, shallowly concave, 3.5–5 mm long; margins entire. *Stamens* in a tube 0.3 mm long, filaments broader at the base, 0.5–1 mm long; anthers 0.5–0.6 mm diam., connective thickened; staminodes narrowly oblong, slightly wider at the base, 0.6–1 mm long; apex obtuse, sometimes slightly widened. *Style* included 2–4 mm long; stigma convex, 0.4–0.7 mm diam., the base subtended by a band of crinkled hairs, 0.5–0.8 mm long. *Ovules* 6–8.

Diagnostic features. Floral tube narrowly campanulate. Ribs widely-spaced, each dividing into three in upper part. Style included. Flowers shorter than leaves; pedicels erect, up to 4 mm long. Foveolae absent.

Other specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] Oct 1976, *I. Abbott s.n.* (PERTH); 28 Dec 2003, *J.A. Cochrane* 4868, *T. Friend & S. Hands* (PERTH); 10 Dec. 1986, *G.J. Keighery* 8586 (PERTH); 28 Oct. 1993, *C.J. Robinson* 1189 (PERTH); 10 Oct. 1984, *B. Swainson & D. Davidson s.n.* (PERTH).

Phenology. Flowering recorded for September to December.

Distribution and habitat. Only recorded for a single locality on sea cliffs east of Albany. Grows in low coastal heath, and tall shrub thickets on white or grey sand associated with granitic outcrops.

Conservation status. Currently listed as Priority Two under Conservation Codes for Western Australian Flora (Smith & Jones 2018), under the name *Chamelaucium* sp. Cape Vancouver (*B. Swainson & D. Davidson s.n.* PERTH 1259660).

Etymology. The subspecies name is derived from the Latin word *ora*, meaning of the coast.

Chamelaucium repens (A.S.George) N.G.Marchant, *comb. nov.*

Darwiniarepens A.S.George, *J. Roy. Soc. Western Australia* 50: 99 (1967). *Type:* 15 miles east of Mingenew [Western Australia], August 1955, *A.R. Main s.n. (holo: PERTH 01018671!; iso: K 000566466!, MEL 2290895!, PERTH 01018663!, PERTH 01018665!).*

Chamelaucium sp. Canna (G. Keighery *s.n.* PERTH 02236435), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed 6 June 2019].

Chamelaucium repens (A.S.George) N.G.Marchant & Keighery ms; G. Paczkowska & A.R. Chapman, *West. Austral. Fl.: Descr. Cat.* 356 (2000); Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed 6 June 2019].

Shrub, prostrate or almost so, branches to 0.1 m long, bearing erect branchlets 20–40 mm long, frequently rooting at the nodes. *Leaves* in terminal fascicles, opposite decussate, vertically oriented, sometimes tinged reddish, linear-narrowly clavate, subterete-terete, (3.5–)6–11 mm long, 0.4–0.6 mm wide; apex obtuse with two very fine lateral spine-like points on the adaxial surface; petiole slightly flattened and slightly concave adaxially 0.2–0.4 mm long, with 1–3 pairs of reddish brown, flattish, ovate-triangular persistent enations 0.1–0.25 mm long in the axils; floral leaves undifferentiated; decurrences completely covering younger parts of stems, 0.3–1.4(–3) mm long. *Flowers* solitary in upper leaf axils forming a loose cluster of 1–6 on erect branchlets, 2.6–4 mm diam.; disc 1.6–2.2 mm diam.; pedicels short and stout, 0.4–1 mm long. *Bracteoles* 2.2–3 mm long, margins entire; umbo incurved, narrowly conic, 0.2–0.8 mm long. *Floral tube* cylindric, shallowly to obscurely 10-ribbed, shallowly glandular-pitted, 3–4.3 mm long; lower floral tube 1.5–2.3 mm long, without foveolae; upper tube 1.5–2.3 mm long. *Calyx lobes* erect, sparsely fine-glandular, broadly to very broadly ovate, 0.6–1.2 mm long; margins irregularly dentate and ciliate to shallowly incised; sinuses wide. *Petals* red, erect, concave, ovate-ovate elliptic, 2.6–3.6 mm long, 1.2–1.9 mm wide; margins entire to minutely undulate. *Stamens* in a tube 0.1–0.3 mm long; sepaline and petaline similar; filaments erect or sometimes bent inwards or ± geniculate, 0.3–0.6 mm long; anthers 3-lobed, with 2 larger lateral lobes and a smaller dorsal one, 0.35–0.55 mm diam.; connectives enlarged; staminodes erect or bent into floral tube, narrowly obtrullate-oblong, 0.3–0.5 mm long. *Style* filiform, long exserted, 12.5–22 mm long; stigma slightly dilated, subglobose, 0.2–0.25 mm diam., papillose, subtended by a sparse whorl of hairs; substigmatic hairs 0.3–0.4 mm long, and mostly directed downwards, sometimes ± spreading. *Ovules* 6–8.

Diagnostic features. The only recorded prostrate species of *Chamelaucium*; leaves reddish, on short lateral branches. Flowers less than 5 mm long. Pedicels less than 1 mm long. Style up to 22 mm long, well exserted.

Other specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] 22 Aug. 2005, *J. Docherty* 366 (PERTH); 23 Aug. 1990, *G. J. Keighery s.n.* (PERTH); no date, *A.R. Main s.n.* (PERTH).

Phenology. Flowering only recorded for August.

Distribution and habitat. Only recorded from a small area growing on lateritic breakaways.

Conservation status. Currently listed as Priority One under Conservation Codes for Western Australian Flora (Smith & Jones 2018), under the name *C. sp. Canna* (G. Keighery *s.n.* PERTH 2236435), [accessed 24 June 2019].

Etymology. The epithet is Latin for prostrate or creeping, referring to the habit.

Chamelaucium roycei N.G. Marchant, *sp. nov.*

Type: Busselton district [precise locality withheld for conservation reasons], Western Australia, 1 October 1954, R.D. Royce 4872 (*holo:* PERTH 01224565!; *iso:* PERTH 01224573!).

Chamelaucium sp. S coastal plain (R.D. Royce 4872), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed 6 June 2019].

Chamelaucium roycei N.G. Marchant & Keighery ms; G. Paczkowska & A.R. Chapman, *West. Austral. Fl.: Descr. Cat.* 356 (2000); Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed 6 June 2019].

Shrub to 120 cm high and 60 cm diam., branches tangled; brown to reddish. *Leaves* opposite decussate, widely spaced, usually spreading, narrowly oblong to linear, 4–10 mm long, 0.3–0.9 mm wide, sometimes triquetrous towards the apex, some leaves are \pm flat-shallowly concave adaxially and are wider than deep; apex mucronate, sometimes acute-acuminate; floral leaves undifferentiated; petiole frequently appressed to stem, 0.2–0.5 mm long; decurrenences 0.6–2(–6) mm long. *Flowers* usually in pairs in the upper leaf axils in a lax raceme with 1–12 flowers; 2.2–3 mm diam.; disc 1.4–2.4 mm diam.; pedicels (0.6–)1–2.8 mm long. *Bracteoles* 1.4–2.6 mm long; umbo prominent, \pm erect, narrowly acicular, 0.6–1.3 mm long. *Floral tube* narrowly obconic to narrowly turbinate, 3.9–5 mm long, sometimes slightly falcate, green, shallowly to obscurely 10-ribbed, glandular; lower tube 2.2–3.2 mm long, without foveolae; upper tube 1.6–2.2 mm long, frequently striate. *Calyx lobes* triangular-broadly triangular-ovate, sparsely glandular, 0.6–0.8 mm long; upper margins ciliate; sinuses wide. *Petals* white, obovate, shallowly concave, 2–3 mm long; margins ciliate-serrate; apex rounded, sometimes \pm truncate. *Stamens* in a tube, 0.2–0.7 mm long, with sepaline filaments borne slightly lower than the petaline; filaments narrowly triangular, 0.3–0.6 mm long; sepaline filaments leaning inwards, or curved outwards; in some flowers slightly larger than the petaline; petaline filaments \pm erect; anthers 0.3–0.7 mm diam.; connectives enlarged, frequently with a concavity on the dorsal-abaxial surface; staminodes narrowly triangular, concave adaxially, 0.5–0.9 mm long; apex shallowly hooded, acute and curved slightly inwards or \pm bilobed with the adaxial lobe longer than the abaxial. *Style* usually exerted, or sometimes barely so, 6–9 mm long; apical part curved; usually thickest at slightly below the middle, then narrowing slightly to the base, or sometimes not narrowing; stigma not dilated, \pm flat, papillose, subtended by a band of hairs; substigmatic hairs filiform, 0.4–0.5 mm long, usually tapering towards the tip, erect and slightly curved over the stigma. *Ovules* (4–)7–9. (Figure 2)

Diagnostic features. Low-growing tangled shrub. Leaves often reddish with a waxy appearance. Umbo acicular. Floral tube narrow, falcate. Style up to 9 mm long, curved.

Selected specimens examined. WESTERNAUSTRALIA: [localities withheld for conservation reasons] 23 Oct. 2007, E. Bennett 15/13 (PERTH); 3 Oct. 2013, V. Clarke *s.n.* (PERTH); 2 Dec. 2009, J.A. Cochrane 7603 (PERTH); 3 Nov. 1993, R.J. Cranfield 8981 & D. Kabay (PERTH); 25 Aug. 1985, G.J. Keighery 8094 (CANB, PERTH); 9 Dec. 1976, G.S. McCutcheon 859 (PERTH); 3 Nov. 1947, R.D. Royce

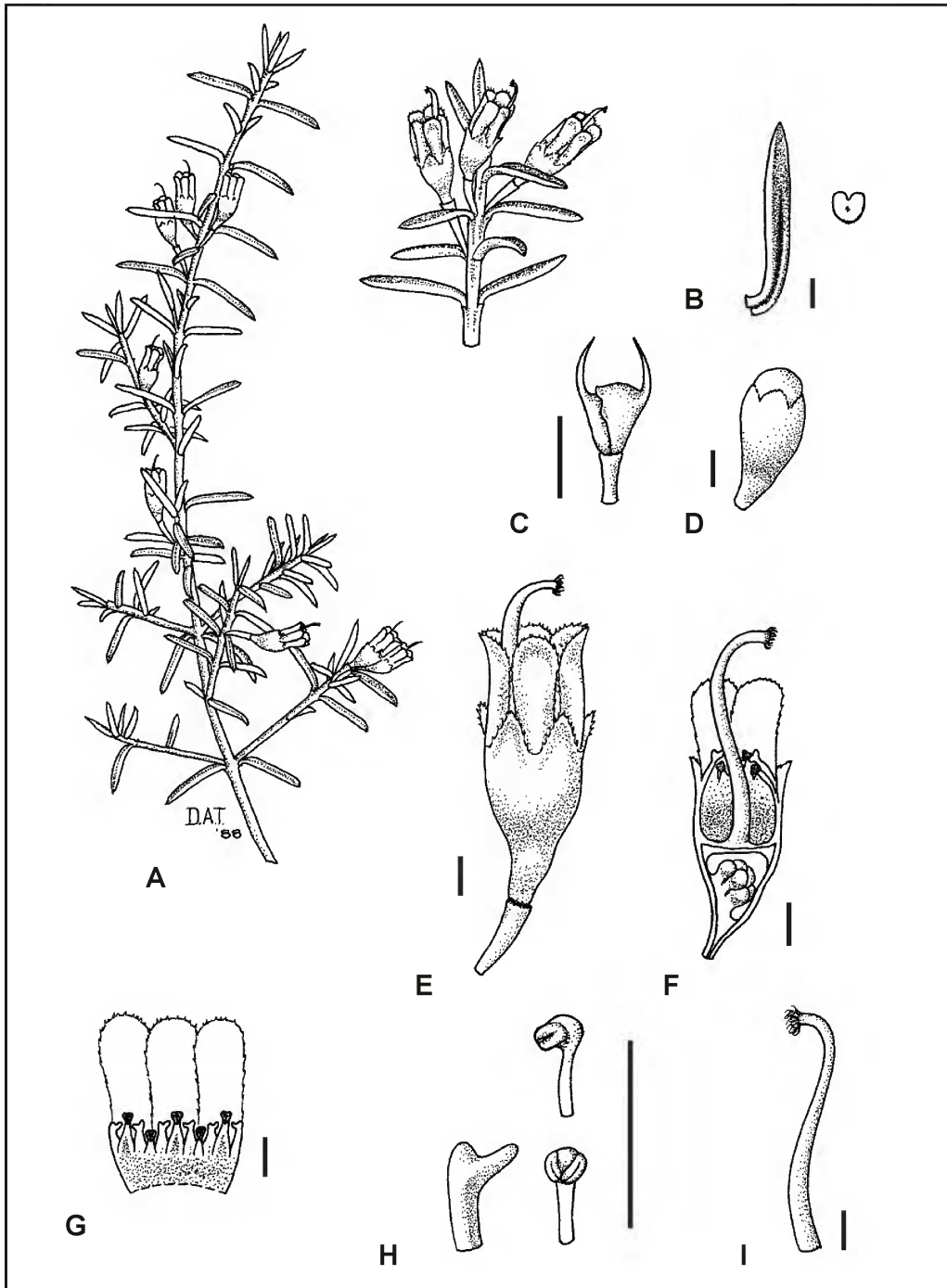


Figure 2. *Chamelaucium roycei*. A – flowering leafy shoot and close-up; B – leaf, side view and cross section; C – flower bud surrounded by overlapping bracteoles, each with a long narrow acute umbo; D – flower bud, bracteoles removed; E – flower at anthesis; F – flower in longitudinal section; G – part of upper floral tube with petals, stamens, and staminodes; H – staminode and stamens with front and side view of anthers; I – style showing band of substigmatic hairs. Scale bars = 1 mm. Drawn by Donna Terrington from R.D. Royce 5765 (PERTH 01227718).

2483 (PERTH); 17 Oct. 1949, *R.D. Royce* 3178 (PERTH, MEL); 8 Oct. 1957, *R.D. Royce* 5765 (AD, PERTH); 10 Sep. 1997, *A. Webb* 062 (PERTH); 23 Sep. 1997, *A. Webb* 066 & *D. Hammer* (PERTH).

Phenology. Peak flowering is from August to November with records for July and December.

Distribution and habitat. Restricted to a small area of winter wet low-lying habitats in open forest of the Donnybrook sunklands south of Busselton. Grows on red lateritic sandy or clayey soils.

Conservation status. Listed as Vulnerable in Western Australia (Smith & Jones 2018), under the name *C. sp.* S coastal plain (*R.D. Royce* 4872),

Etymology. Named after Robert Dunlop Royce, a cadet of the Department of Agriculture from 1934, who joined the Botany Branch and Western Australian Herbarium in 1944 to become the Curator of the herbarium from 1960 to 1974. He made numerous plant and algal collections in the state, especially of plants in the Busselton–Margaret River area during his many annual trips certifying clover seed. He was the first to collect *C. roycei* in 1947 and made a further four collections of the species over the next ten years.

Chamelaucium xanthocladum N.G.Marchant, *sp. nov.*

Type: Waychinicup [precise locality withheld for conservation reasons], Western Australia, 28 October 1990, *N.G. Marchant* 90/10/7 (*holo:* PERTH 06763308).

Chamelaucium sp. Waychinicup (*D. Davidson* s.n. PERTH 01486527), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed 6 June 2019].

Chamelaucium aérocladus N.G.Marchant & Keighery ms; *G. Paczkowska* & *A.R. Chapman*, *West. Austral. Fl.: Descr. Cat.* 354 (2000); Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed 6 June 2019].

Shrub 100–150 cm high or more in moist, sheltered habitats; branches weeping, with closely packed yellowish green young stems and leaves, decurrences, 2–5 mm long, widely spaced. *Leaves* opposite, linear, appressed to stem, 10–20 mm long, 0.5–0.7 mm wide; abaxial surface rounded, adaxial surface with a shallow groove in lower part, apex minutely bifid; petiole 0.5–1 mm long. *Flowers* few, 1–2 in upper axils, 5–7 mm diam.; disc 2.3–3.5 mm diam.; pedicel 3.7–5.4 mm long. *Bracteoles* mostly comprised of a broad based, acuminate umbo. *Floral tube* turbinate to narrowly turbinate, 4–6 mm long; lower part 2.8–4.4 mm long, surface shallowly rugose, without ribs; upper part 1.4–2 mm long, smooth; foveolae absent. *Calyx lobes* 0.2–0.6 mm long, very broadly triangular to hemispheric; margins entire or with small serrations, sinuses very broad. *Petals* creamy white to greenish cream, 2.5–4.4 mm long, erect, obovate to ovate, deeply concave, margins entire or with minutely serrate margins. *Stamens* united in a tube 0.3–0.5 mm long; anthers 0.4–0.6 mm long, antisepalous stamens and staminodes geniculate and antipetalous stamens and staminodes erect or all stamens and staminodes geniculate; connective globose, reddish brown or cream; staminodes narrowly triangular, 0.4–0.6 mm long, apex obtuse. *Style* exerted, 4.7–5.5 mm long, very broad towards the base; stigma capitate, 0.7–0.9 mm diam., subtended by a band of hairs; substigmatic hairs white, 0.3–0.5 mm long. *Ovules* 4–6. (Figure 3)

Diagnostic features. The distinctly weeping branches and the thin, yellow-green leaves and the often-greenish flowers distinguish this species from all other south coast species.

Other specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] 1 Oct. 2010, *S. Barrett & S. Comer* 1978 (PERTH); 7 Oct. 2008, *S. Barrett & G. Freebury* 1783 (PERTH); 11 Dec. 2000, *J.A. Cochrane* 3792 (PERTH); 17 Nov. 1986, *E.J. Croxford* 5498 (PERTH); 15 Oct. 1984, *D. Davidson s.n.* (PERTH); 27 Aug. 1986, *D. Davidson s.n.* (PERTH).

Phenology. Flowers from late August through to January.

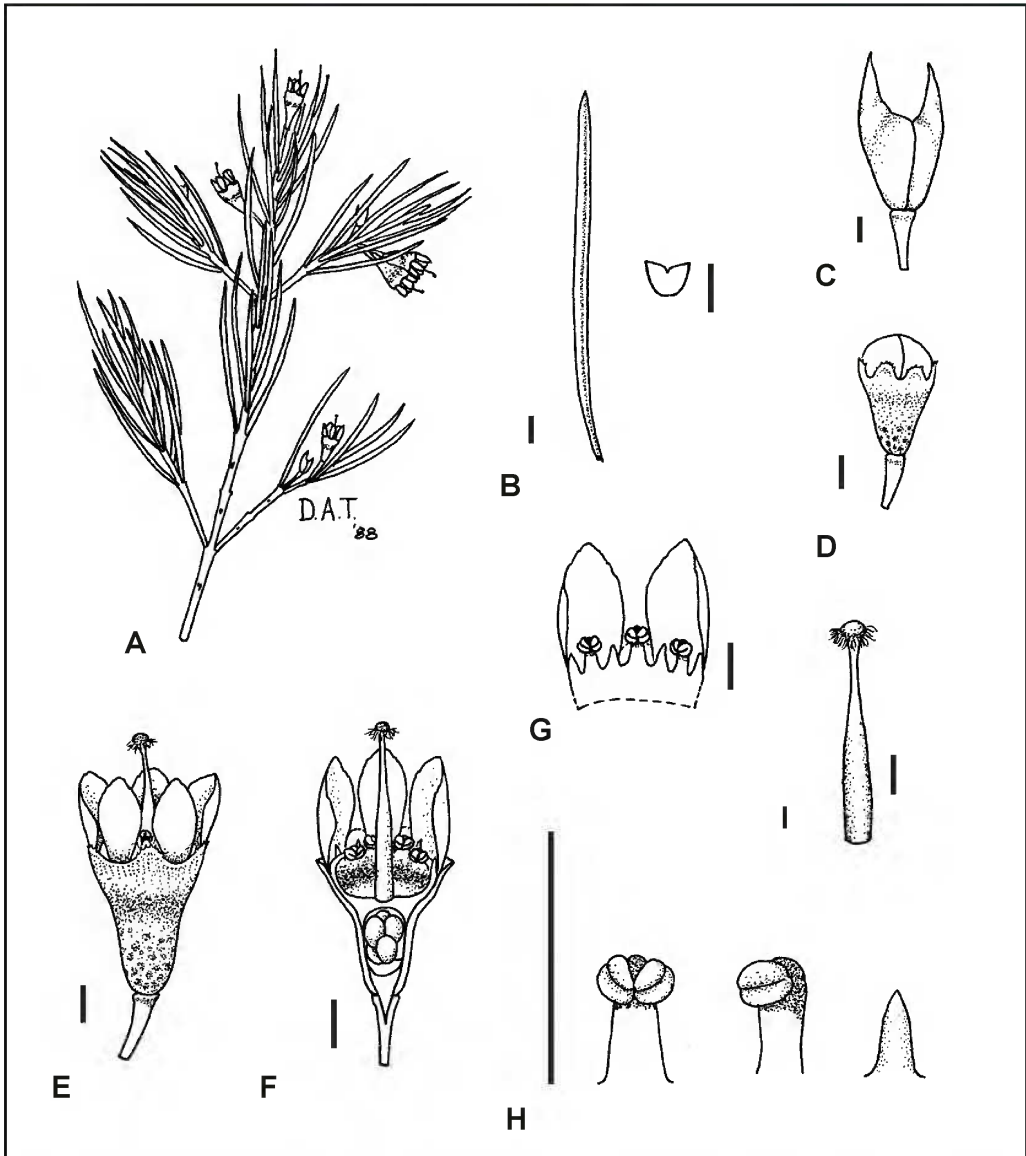


Figure 3. *Chamelaucium xanthocladum*. A – flowering leafy shoot; B – leaf, side view and cross section; C – flower bud surrounded by overlapping bracteoles, each with a broad-based umbo; D – flower bud, bracteoles removed; E – flower at anthesis; F – flower in longitudinal section; G – part of upper floral tube with petals, stamens, and staminodes; H – staminode and stamens with front and side view of anthers; I – style showing ring of substigmatic hairs. Scale bars = 1 mm. Drawn by Donna Terrington from *D. Davidson s.n.* (PERTH 01486527).

Distribution and habitat. Restricted to a limited range in heathland and coastal thickets between Albany and Cheyne Beach, Western Australia. Grows on brown sandy or loam soils associated with granitic outcrops.

Conservation status. Currently listed as Priority Two under Conservation Codes for Western Australian Flora (Smith & Jones 2018), under the name *C. sp.* Waychinicup (D. Davidson s.n. PERTH 01486527).

Etymology. The species name is derived from the Greek words *xanthos*, yellow, and *clados*, branches.

Acknowledgements

The taxonomic skills of Chin See Chung are acknowledged for his excellent support. Greg Keighery provided much valuable field knowledge and advice in the early stages of studies on *Chamelaucium* and *Darwinia*. Annette Wilson, Barbara Rye and other staff of the WA Herbarium, PERTH are sincerely thanked for their help and encouragement. Donna Terrington prepared the illustrations.

References

- Bentham, G. (1865). Notes on the Genera *Darwinia*, Rudge, and *Bartlingia*, Ad. Brongn. *The Journal of the Linnean Society. Botany* 9: 176–181.
- Bentham, G. (1867). *Flora Australiensis*. Vol. 3. (Lovell Reeve & Co.: London.)
- Bibby, P. (1944). Geraldton Wax-flower is a *Chamelaucium*. *The Victorian Naturalist* 61 (4): 66.
- Blackall, W.E. (1954). *How to Know Western Australian Wildflowers*, Part 1. B.J. Grieve (ed.) (University of Western Australia Press: Nedlands, Western Australia.)
- Blackall, W.E. & Grieve, B.J. (1980). *How to Know Western Australian Wildflowers*, Part 3A. Revised 2nd edn by B.J. Grieve. (University of Western Australia Press: Nedlands, Western Australia.)
- Briggs, B.G. & Johnson, L.A.S. (1979). Evolution in the Myrtaceae – Evidence from Inflorescence Structure. *Proceedings of the Linnean Society of New South Wales* 102: 157–256.
- Candolle, A.P. de (1827). In: Bory de Saint-Vincent, J.B.G.N. *Dictionnaire Classique d'Histoire Naturelle* 11 (Rey et Gravier; Baudoin frères: Paris.)
- Candolle, A.P. de (1828). *Prodromus Systematis Naturalis*. 3. (Treuttel and Wurtz: Paris.)
- Desfontaines, R.L. (1819a). Description de trois nouveaux genres. *Mémoires du Muséum d'Histoire Naturelle* 5: 34–44, t. 4.
- Desfontaines, R.L. (1819b). Supplément au memoire sur le genre *Chamelaucium*. *Mémoires du Muséum d'Histoire Naturelle* 5: 271–273, t. 19.
- Domin, K. (1923). New additions to the flora of Western Australia. *Verticordia plumosa* (Desf.) Domin. *Věstník Královské České Společnosti Nauk, Třída Matematicko-přirodovědecké* 2: 79.
- Endlicher, S.L. (1838). *Stirpium australasicarum herbaria hügeliiani decades tres*: 5. (J.P. Sollinger: Wein.)
- Gardner, C.A. (1931). *Enumeratio Plantarum Australiae Occidentalis* (Government Printer: Perth.)
- George, A.S. (1967). Additions to the flora of Western Australia: ten miscellaneous new species. *Journal of the Royal Society Western Australia* 50(4): 97–104.
- Mueller, F. (1878). Myrtaceae. In: *Fragmenta phytographiae Australiae*. Vol. 11. (Government Printer: Melbourne.)
- Mueller, F. (1882). *Systematic Census of Australian Plants* 1. (M'Carron, Bird: Melbourne.)
- Rye, B.L., Wilson, P.G., Heslewood, M.M., Perkins, A.J. & Theile, K.R. (in press). A new subtribal classification of Myrtaceae tribe Chamelaucieae. *Australian Systematic Botany*.
- Schauer, J.C. (1844). Myrtaceae R.Br. In: Lehmann, C. (ed.) *Plantae Preissianae* 1: 96–160. (sumptibus Meissneri: Hamburgi.)
- Smith, M.G. & Jones, A. (2018). *Threatened and Priority Flora list 5 December 2018*. Department of Biodiversity, Conservation and Attractions. <https://www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-plants> [accessed 24 June 2019].

- Sophocles, E.A., Thayer, J.H., & Drisler, H. (eds) (1900). *Greek Lexicon of the Roman and Byzantine Periods (from B.C. 146 to A.D. 1100)*. (C. Scribner's Sons: New York.)
- Sprengel, K.[P.J.] (1825). Linnaeus. C., *Systema Vegetabilium* Ed. 16, 2. (sumptibus Librariae Dieterichianae: Göttingen)
- Turczaninov, N. (1847). Decas tertia generum adhuc non-descriptorum adjectis descriptionibus nonnullarum specierum Myrtacearum xerocarpicarum atque umbelliferarum imperfectarum. *Bulletin de la Société Impériale des Naturalistes de Moscou* 20: 148–174.
- Turczaninov, N. (1849). (as Tourczaninov) Decas sexta generum plantarum hucesque non descriptorum *Bulletin de la Société Impériale des Naturalistes de Moscou* 22(2):1–38.
- Turczaninov, N. (1852). Myrtaceae xerocarpicae, in Nova Hollandia. *Bulletin de la Class Physico-Mathématique de L'Académie Impériale des Sciences de Saint-Pétersbourg* 10 (21, 22): 321–346.
- Western Australian Herbarium (1998–). *FloraBase—the Western Australian flora*. Department of Biodiversity, Conservation and Attractions. <https://florabase.dpaw.wa.gov.au/> [accessed 6 June 2019].